

Application No.: 10/026,171  
Response dated: February 14, 2006  
Reply to Office Action of: November 14, 2006

### REMARKS

Reconsideration of the present claims, in light of the above claim clarifications and the Remarks which follow, is respectfully requested.

Claims now before the Examiner are 1, 3, 5-12, 14-22 and 24 -35.

Support for the amendments to the claims is found at page 16, paragraph [0062] which reads in part: "In these embodiments, "heating" or "heated" means that what is "heated" or "heating" is maintained at substantially the same temperature "heated" or "heating" to."

The numbering in this Response will follow that of the Examiner's Action.

1. No response necessary.

#### **Rejections under 35 USC § 112**

2. *Claims 1, 3, 5- 10, 14- 22, and 24- 35 stand Rejected under 35 USC § 112, second paragraph.*

Claim 15 has been amended as suggested by the Examiner. Further all the independent claims have been amended as suggested by the Examiner.. Applicants' amendments to claim 15 and the independent claims are respectfully submitted to address the Examiner's Rejections.

Withdrawal of the Rejections is respectfully requested.

#### **Rejections Under 35 USC § 103**

3. & 4. *Claims 1, 3, 5-10 and 14-22 stand Rejected under 35 USC § 103(a) as Obvious over either of Razavi I and Razavi II.*

Neither Razavi document discloses or suggests the present claim elements. The present claim elements include, in most independent claims, a heating of the metallocene and also the activator not disclosed or suggested by either Razavi document. Furthermore, the amended claims include elements that the heated metallocene and

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activator are combined with a carrier that is heated to a temperature not disclosed or suggested by either Razavi document, and that the metallocene and activator are combined with the carrier at substantially the same temperature as the carrier/support. Accordingly, neither of the two Razavi documents render the present claims Obvious.

Withdrawal of the Rejections is respectfully requested.

5. *Claims 1, 3, 5,-10, 14-22 and 24-35 stand Rejected under 35 USC § 103(a) as Obvious overy (Uwai).*

The Uwai document does not disclose or suggests the present claim elements. The amended claims include elements that the heated metallocene and activator are combined with a carrier that is heated to a temperature not disclosed or suggested by the Uwai document, and that the metallocene and activator are combined with the carrier at substantially the same temperature as the carrier. Accordingly, Uwai does not render the present claims Obvious and withdrawal of the Rejection is respectfully requested.

6. The Examiner states that the cited documents disclose that the support and mixture of metallocene with the cocatalyst both being at some temperature greater than room temperature when they are combined. Razavi I & II state that the metallocene and alumoxane are reacted at 15-50°C. None of the present claims falls in this Razavi range, further, both Razavi documents suggest combining the reacted metallocene and alumoxane at a temperature higher than the claimed temperature of the heated support. There are at least two problems with the Razavi method. The first problem is that Applicants have shown both in the Specification as filed and in Declarations that the heating of the alumoxane and metallocene to a temperature above 60°C results in desirable lower fouling and second the combined catalyst activator are then combined with a support at a temperature higher than the claimed heated support. The fact that the combined support/alumoxane/metallocene of Razavi may be at a similar temperature as the claimed support and previously heated metallocene/alumoxane ignores the sequence of the claims and further ignores the results shown to be superior to the Razavi technique, in the Declarations. Applicants have submitted evidence and the Examiner is ignoring it.

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The Uwai document states that the combination of metallocene and aluminoxane can take place at -50 to 100°C, which means that Uwai does not recognize a result effective variable, that being the heating of the metallocene aluminoxane combination at a temperature of from 60-125°C, which has been shown to result

Uwai suggests reacting a metallocene and an aluminoxane at a temperature of -50°C to 100°C then reacting that combination with a support at a temperature of 85-150°C. However, the examples of Uwai seem to focus on the temperature of the combination of a) the already combined metallocene and aluminoxane and b) the support. It is this temperature that the authors of Uwai indicate is important in achieving their intent.

The examples of Uwai are summarized as follows

Ex. 1 MAO + MCN (metallocene) combined at 25.5°C then support added and the combination elevated to 100°C, then cooled to -10°C and washed.

Ex. 2 same as Ex 1, but prepolymerized at a different rate

Ex. 3 same as Ex 1, but contact with support is at 115°C

Ex 4 same as Ex 1, but change in MCN

Comp. Ex 1 same as Ex 1 but change in contact with support at 60°C

Comp Ex 2 same as Ex 1 but change temperature of wash from -10 to 60°C.

Comp Ex 3 same as Ex 1 but change solvent in wash step

Comp Ex 4 MCN and support combined @ 100°C, subsequently MAO added at 100°C

Comp Ex 5 MAO and support are combined @ 100°C, then cooled to 30°C washed then MCN of Ex 1 added @ 40°C then after 10 minutes combination is raised to 100°C,

Comp Ex 6 MAO added to MCN @ 25°C, silica then added at same temperature, then after 10 minutes, temperature raised to 70°C.

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At no time in these examples, either inventive or comparative, do the authors of Uwai use a temperature as presently claimed to treat and/or hold the metallocene/alumoxane combination. Therefore, the skilled person would see that Uwai did not appreciate or recognize the presently claimed result effective variable of heating the metallocene/alumoxane combination to a temperature from 60-125°C (encompassing the temperature ranges of all independent claims).

Where the prior art has not recognized the "result-effective" capability of a particular invention parameter, no expectation would exist that optimizing the parameter would successfully yield the desired improvement. *In re Antonie*, 559 F.2d at 619, 195 U.S.P.Q.

Antonie claimed an apparatus for treating waste water. The apparatus included a tank having continuously rotating semi-immersed contactors (discs). Antonie discovered that a ratio of tank volume to contactor area of 0.12 gals./sq. ft. maximized the treatment capacity of the equipment.

The USPTO, in the Antonie case, cited a single reference disclosing the same basic structure, but lacking any disclosure of a tank volume to contactor ratio of 0.12. In the present context this analogous to the citation of Uwai, which lacks the disclosure of the temperature for the combination of metallocene/alumoxane at 60-125°C would be effective in decreasing fouling and improving catalyst efficacy. Indeed, the Uwai reference does not suggest any reason to raise the temperature of the combination of the metallocene/alumoxane, save for the broad disclosure, but not supported by the examples of Uwai. In the Antonie case, the USPTO still considered an apparatus having the claimed ratio an obvious modification of the prior art apparatus. In the USPTO's view, optimizing efficiency by varying parameter magnitude represented a mere matter of mechanical experimentation.

In reviewing the Board's decision, the CCPA stated that an evaluation of the obviousness of the invention as a whole requires looking "not only to the subject matter which is literally recited in the claim in question (the ratio value, or in the present case the temperature of the metallocene/alumoxane combination) but also to those properties

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of the subject matter which are inherent in the subject matter *and* are disclosed in the specification." "In this [Antonie] case, the invention as a whole is the ratio value of 0.12 *and* its inherent and disclosed property." *Id*

The unsuggested recognition by Antonie of the relationship between the result produced and the particular design parameters was the touchstone of nonobviousness. In the presently claimed case, this is the relationship of the combination of metallocene/alumoxane at a temperature ranging from 60-125°C and the resultant lower fouling and improved catalyst efficacy. Acknowledging that it would ordinarily consider mere optimization of a variable in a known process *prima facie* obvious, the court noted two exceptions to this rule: 1) cases where optimizing a known result-effective variable produced unexpectedly good results as in the present case, and 2) where the art did not recognize that the parameter optimized was a result-effective variable. *Id* at 620, 195 U.S.P.Q. at 8-9. It is this former (1) case that is the subject of the present claims. Uwai did not recognize that temperature of the metallocene/alumoxane combination was a result effective variable for improving fouling and/or catalyst efficacy.

Accordingly, Uwai does not render the present claims Obvious

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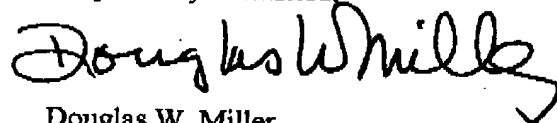
The claims are in condition for allowance.

Note is made that the correspondence should be sent to:

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Respectfully submitted



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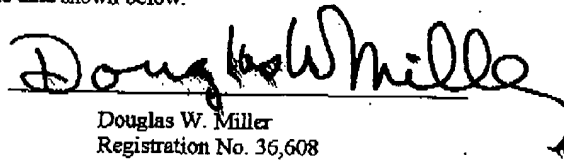
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2.14.07

Date



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